



IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Patent Application of)	Group Art Unit: Unassigned
J. Paige Phillips et al.)	Examiner: Unassigned
Application No.: 10/594,073)	Confirmation No.: Unassigned
Filing Date: September 25, 2006)	
Title: PHOTOVOLTAIC DEVICE WITH)	
TRIMETASPHERES)	

SECOND
INFORMATION DISCLOSURE STATEMENT
TRANSMITTAL LETTER

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Sir:


Enclosed is a SECOND Information Disclosure Statement (IDS) and accompanying form PTO-1449 for the above-identified patent application.

- ☒ No additional fee for submission of an IDS is required.
- ☐ The fee of 180 as set forth in 37 C.F.R. § 1.17(p) is also enclosed.
- ☐ A statement under 37 C.F.R. § 1.97(e) is also enclosed.
- ☐ A statement under 37 C.F.R. § 1.97(e), and the fee of 180 as set forth in 37 C.F.R. § 1.17(p) are also enclosed.
- ☐ Charge _____ to Deposit Account No. 02-4800 for the fee due.
- ☐ A check in the amount of _____ is enclosed for the fee due.
- ☐ Charge _____ to credit card for the fee due. Form PTO-2038 is attached.
- ☒ The Director is hereby authorized to charge any appropriate fees under 37 C.F.R. §§ 1.16, 1.17 and 1.21 that may be required by this paper, and to credit any overpayment, to Deposit Account No. 02-4800. This paper is submitted in duplicate.

Respectfully submitted,

BUCHANAN INGERSOLL AND ROONEY PC

Date April 9, 2007

By: 
Christopher L. North
Registration No. 50,433

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J. Paige Phillips et al.)	Group Art Unit: Unassigned
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Alexandria, VA 22313-1450

Sir:

In accordance with the duty of disclosure as set forth in 37 C.F.R. § 1.56, the accompanying information is being submitted in accordance with 37 C.F.R. §§ 1.97 and 1.98. Pursuant to 37 C.F.R. § 1.98, a copy of each of the documents cited is enclosed. However, copies of the listed U.S. patents and U.S. patent application publications are not enclosed since it is no longer required according to the July 11, 2003 waiver of the requirement for copies of cited U.S. patents and U.S. patent application publications in national patent applications filed after June 30, 2003 and international applications entering the national stage under 35 U.S.C. § 371 after June 30, 2003.

U.S. PATENT DOCUMENTS

1. MILLER et al., U.S. Patent No. 6,471,942 B1, issued on October 29, 2002.
2. DORN et al., U.S. Patent Publication No. 2004/0054151 A1, published on March 18, 2004.
3. DORN et al., U.S. Patent No. 6,303,760 B1, issued October 16, 2001.
4. WHEWELL, U.S. Patent No. 5,269,953, issued on December 14, 1993.
5. ATA et al., U.S. Patent No. 6,815,067 A, issued on November 9, 2004.
6. EKLUND, U.S. Patent No. 5,453,413 A, issued on September 26, 1995.
7. SNOW et al., U.S. Patent No. 5,805,326 A, issued on September 9, 1998.
8. TUTT, U.S. Patent No. 5,172,278 A, issued on December 15, 1992.
9. KAJIURA et al., U.S. Patent Publication No. 2003/0015414 A1, published on January 23, 2003.

10. TAKIKAWA et al, U.S. Patent Publication No. 2002/0061638 A1, published on May 23, 2002.

11. ANAZAWA et al., U.S. Patent Publication No. 2001/0050219 A1, published on December 13, 2001.

12. ZETTL et al., U.S. Patent No. 6,063,243, issued on May 16, 2000.

NON-PATENT LITERATURE DOCUMENTS

1. IEZZI, ERICK B. ET AL., "A Symmetric Derivative of the Trimetallic Nitride Endohedral Metallofullerene, $\text{Sc}_3\text{N@C}_{80}$," J.AM.CHEM.SOC., 2002, pp. 524-525, Vol. 124, No. 4, American Chemical Society.

2. KRATSCHEMER, W. ET AL., "Solid C_{60} : a new form of carbon," NATURE, 9/27/90, pp. 354-358, Vol. 347, Nature Publishing Group.

3. OLMSTEAD, MARILYN M. ET AL., "Isolation and Crystallographic Characterization of $\text{ErSc}_2\text{N@C}_{80}$: an Endohedral Fullerene Which Crystallizes with Remarkable Internal Order," J.SM.VHRM.SOC., 2000, pp. 12220-12226, Vol. 122, No. 49, American Chemical Society.

4. STONE, A.J. ET AL., "Theoretical Studies of Icosahedral C_{60} and Some Related Species," Chem. Physics Ltrs., 8/8/86, pp. 501-503, Vol. 128, No. 5,6, Elsevier Science Publishers B.V.

5. NAGASE et al., Chapter 9: Endohedral metallofullerenes: theory, electrochemistry, and chemical reactions, of Fullerenes: Chemistry, Physics and Technology (Kadish and Ruoff, eds.), 2000, John Wiley and Sons, pp. 395-429.

6. JOURNET et al., "Large-scale production of single-walled carbon nanotubes by the electric-arc technique," *Nature*, 1997, vol. 388, pp. 756-758, American Association for the Advancement of Science, Washington, D.C.

7. WILSON et al., "Advanced materials: fluorinated fullerenes and nanotubes," *Tetrahedron*, 2002, vol. 58, pp. 4041-4047, Elsevier Science Ltd.

8. TRULOVE, "Filled buckyballs - diamonds from soot," article from website <http://www.research.vt.edu/resmag/2002winter/buckyballs.html>, 9 March 2002 (09.03.2002), available at www.archive.org. (entire document).

9. MARTENS et al., "Nanostructured organic *pn* junctions towards 3D photovoltaics", Applied Physics A: Materials Science & Processing, June 2004, Abstract, Springer-Verlag Heidelberg.

10. MUNTERS et al., "A comparison between state-of-the-art 'gilch' and 'sulphanyl' synthesised MDMO-PPV/PCBM bulk hetero-junction solar cells", Thin Solid Films 403-404, Abstract, 2002 Elsevier Science B.V.

11. MATT et al., "Device Operation of Conjugated Polymer/Fullerene Bulk Hetero-Junction Solar Cells", Linz Institute for Organic Solar Cells (LIOS), September 2001, Johannes Kepler University, Austria.

12. TOPASNA et al., "Fullerene-Polymer Photovoltaic Thin-Film Devices", '01 SBIR Phase II... *Topic 16 - Surprises*, Luna Innovations Incorporated Blacksburg, VA. March 2004.

13. IBM Technical Disclosure Bulletin, Table of Contents including "Atomic Force Microscope with High Dynamic Range Using Bunny or Dopy Balls", Vol. 35, No. 7, December 1992. IBM Corp.

The documents are being submitted within three (3) months of the filing or entry of the national stage of this application or before the first Office Action on the merits, whichever is later. Since these documents are being filed within the time period set forth in 37 C.F.R. § 1.97(b), no fee or statement is required.

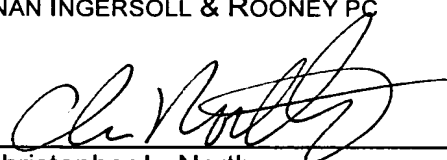
To assist the Examiner, the documents are listed on the attached form PTO-1449. It is respectfully requested that an Examiner initialed copy of this form be returned to the undersigned.

Respectfully submitted,

BUCHANAN INGERSOLL & ROONEY PC

Date: April 9, 2007

By:


Christopher L. North
Registration No. 50433

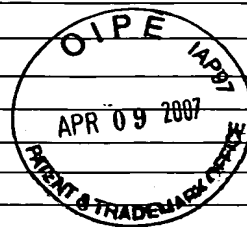
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**SECOND
INFORMATION DISCLOSURE
STATEMENT BY APPLICANT**

(use as many sheets as necessary)

Sheet 1 of 2

Application Number	10/594,073
Filing Date	September 25, 2006
First Named Inventor	PHILLIPS et al.
Examiner Name	Unassigned
Attorney Docket No.	1034136-000031



U.S. PATENT DOCUMENTS

Examiner Initials	Document Number	Kind Code (if known)	Name of Patentee or Applicant of Cited Document	Issue/Publication Date (MM-DD-YYYY)
	6,471,942	B1	Miller et al.	10-29-2002
	2004/0054151	A1	Dorn et al.	03-18-04
	6,303,760	B1	Dorn et al.	10-16-2001
	5,269,953		Whewell	12-14-1993
	6,815,067	A	Ata et al.	11-09-2004
	5,453,413	A	Eklund	09-26-1995
	5,805,326	A	Snow et al.	09-09-1998
	5,172,278	A	Tutt	12-15-1992
	2003/0015414	A1	Kajiura et al.	01-23-2003
	2002/0061638	A1	Takikawa et al.	05-23-2002
	2001/0050219	A1	Anazawa et al.	12-13-2001
	6,063,243		Zettl et al.	05-16-2000

FOREIGN PATENT DOCUMENTS

Examiner Initials	Document Number	Kind Code (if known)	Country	Date of Publication (MM-DD-YYYY)	STATUS						
					Translation	Partial Translation	Eng. Lang. Summary	Search Report	IPER	Abstract	Cited in Spec

NON-PATENT LITERATURE DOCUMENTS

Examiner Initials	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published.
	IEZZI, ERICK B. ET AL., "A Symmetric Derivative of the Trimetallic Nitride Endohedral Metallofullerene, Sc ₃ N@C ₈₀ ," J.A.M.CHEM.SOC., 2002, pp. 524-525, Vol. 124, No. 4, American Chemical Society
	KRATSCHEMER, W. ET AL., "Solid C ₆₀ : a new form of carbon," NATURE, 9/27/90, pp. 354-358, Vol. 347, Nature Publishing Group
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	STONE, A.J. ET AL., "Theoretical Studies of Icosahedral C ₆₀ and Some Related Species," Chem. Physics Ltrs., 8/8/86, pp. 501-503, Vol. 128, No. 5,6, Elsevier Science Publishers B.V.
	NAGASE et al., Chapter 9: Endohedral metallofullerenes: theory, electrochemistry, and chemical reactions, of Fullerenes: Chemistry, Physics and Technology (Kadish and Ruoff, eds.), 2000, John Wiley and Sons, pp. 395-429.
	JOURNET et al., "Large-scale production of single-walled carbon nanotubes by the electric-arc technique," Nature, 1997, vol. 388, pp. 756-758, American Association for the Advancement of Science, Washington, D.C.
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	TRULOVE, "Filled buckyballs - diamonds from soot," article from website http://www.research.vt.edu/resmag/2002winter/buckyballs.html , 9 March 2002 (09.03.2002), available at www.archive.org . (entire document).

Examiner Signature	Date Considered
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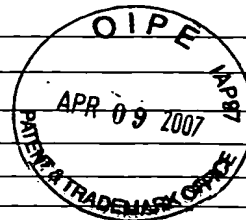
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	MARTENS et al., "Nanostructured organic <i>pn</i> junctions towards 3D photovoltaics", Applied Physics A: Materials Science & Processing, June 2004, Abstract, Springer-Verlag Heidelberg.
	MUNTERS et al., "A comparison between state-of-the-art 'gilch' and 'sulphiny' synthesised MDMO-PPV/PCBM bulk hetero-junction solar cells", Thin Solid Films 403-404, Abstract, 2002 Elsevier Science B.V.
	MATT et al., "Device Operation of Conjugated Polymer/Fullerene Bulk Hetero-Junction Solar Cells", Linz Institute for Organic Solar Cells (LIOS), September 2001, Johannes Kepler University, Austria.
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